CLAIMS

1. A liquid ejection apparatus comprising:

a liquid ejection head for ejecting liquid;

a cap member for receiving waste liquid discharged from the liquid ejection head;

a waste liquid tank for retaining the waste liquid; and

a gear pump for drawing the waste liquid from the cap member and introducing the waste liquid into the waste liquid tank,

wherein the apparatus is characterized by waste liquid backflow suppression means for suppressing backflow of the waste liquid to the cap member.

2. The apparatus according to Claim 1, characterized in that the waste liquid backflow suppression means is arranged between the waste liquid tank and the gear pump or between the gear pump and the cap member.

3. The apparatus according to Claims 1 or 2, characterized in that the waste liquid backflow suppression means is formed by a valve device.

4. The apparatus according to Claim 3, characterized by a liquid retainer that retains the liquid to be ejected and supplies the liquid to the liquid ejection head while being pressurized by pressurized air, wherein the gear pump generates the pressurized air for pressurizing the liquid retainer.

5. A liquid ejection apparatus comprising:

a liquid ejection head for ejecting liquid;

a liquid retainer that retains the liquid to be ejected and supplies the liquid to the liquid ejection head while being pressurized by pressurized air; and

a gear pump for generating the pressurized air for pressurizing the liquid retainer,

wherein the apparatus is characterized by air backflow suppression means that permits supply of the pressurized air only to the liquid retainer.

6. The apparatus according to Claim 5, characterized in that the air backflow suppression means is arranged between the liquid retainer and the gear pump or in a section upstream of the gear pump.

7. The apparatus according to Claims 5 or 6, characterized in that the air backflow suppression means is formed by a valve device.

8. A liquid ejection apparatus comprising:

a liquid ejection head for ejecting liquid;

a cap member for receiving the liquid ejected from the liquid ejection head as waste liquid;

a gear pump for drawing the waste liquid and the air from the cap member; and

a liquid retainer having a waste liquid retainer portion for retaining the waste liquid drawn by the gear pump and receiving the air as pressurized air, and a liquid retaining portion for retaining the liquid to be supplied to the liquid ejection head using the pressurized air:

wherein the apparatus is characterized by fluid backflow suppression means for suppressing backflow of the waste liquid and the pressurized air to the cap member.

9. The apparatus according to Claim 8, characterized in that the fluid backflow suppression means is arranged between the liquid retainer and the gear pump or between the gear pump and the cap member.

10. The apparatus according to Claims 8 or 9, characterized in that the fluid backflow suppression means is formed by a valve device.

11. The apparatus according to any one of Claims 4, 7, and 10, characterized in that the valve device includes:

an inlet portion into which at least one of the waste liquid or the pressurized air is introduced;

an outlet portion through which the waste liquid or the pressurized air flows from the inlet portion to the exterior; and

a valve body for connecting the inlet portion and the outlet portion to each other if the pressure of the pressurized air is not less than a predetermined reference level, and disconnecting the inlet portion from the outlet portion if the waste liquid and the pressurized air return from the outlet portion to the inlet portion.

12. The apparatus according to Claim 11, characterized in that the valve body of the valve device connects the inlet portion and the outlet portion to each other if the difference between the pressure in the inlet portion and the pressure in the outlet portion exceeds a predetermined reference value and disconnects the inlet portion from the outlet portion if the difference between the pressure in the inlet portion and the pressure in the outlet portion is equal to or smaller than the reference value.